

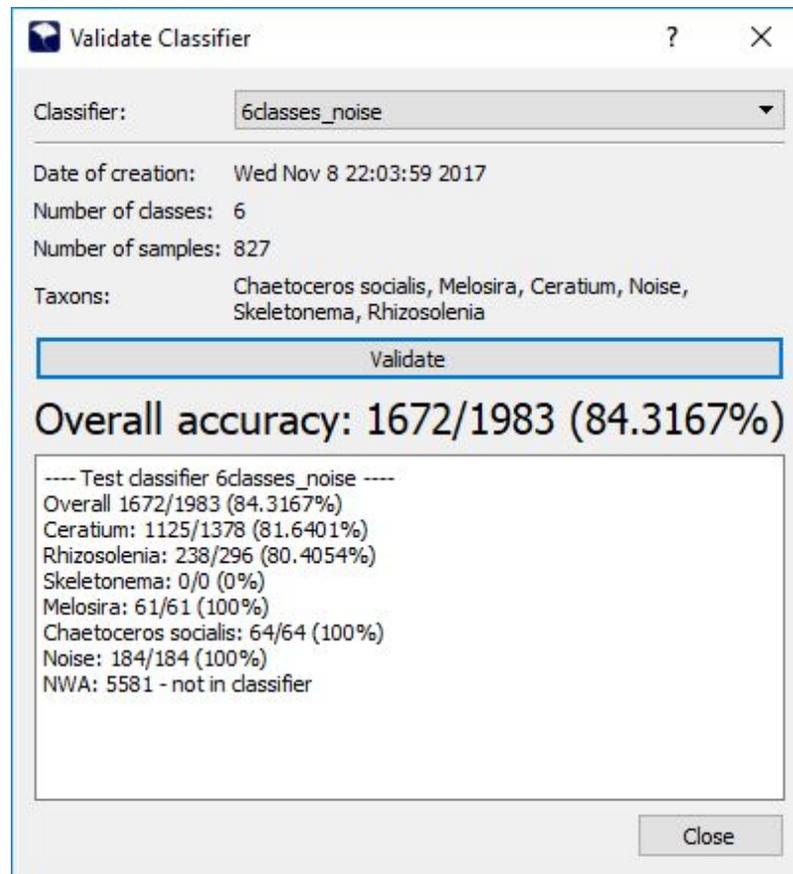
Stingray Software Release Notes

2.2.0

- New Instrument Profiles. Selected profile is now shared across all 4Deep software - select instrument in one software package and it will be used automatically in other packages. Better management of standard and custom profiles.
- Drastic improvement of image classifier performance (over 20x in some cases).
- Export report supports export to Excel format with images.
- Optimizations in hologram reconstruction CUDA code.
- Bug fixes and stability improvements.
- Updated to the latest libraries - Qt 5.9.6, OpenCV 3.4, CUDA 9.1, MXNET 1.1.

2.1.0

- Validate classifier dialog is used to compare classifier performance on selected subset of objects. Compare multiple pre-trained classifier performances to select one that works best for the particular classes of objects.



- Alerts - configure alerts that will notify you when total number of objects or number of objects for a particular class exceeds pre-determined threshold.

Manage alerts

Alerts: + -

	Name	Enabled	Taxon	Threshold
1	Ceratium	Disabled	Ceratium	15
2	Skeletonema	Disabled	Skeletonema	55
3	Total	Disabled	All	5

Close

Alerts: ✕
 Total - triggered on Tue Nov 28 15:04:37 2017, total detected: 5, threshold: 5

- Analysis report dialog shows elapsed analysis time, number of holograms processed, number of objects found, and, when classifier is active, number of objects found in each taxon.

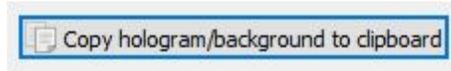
Analysis Report ✕

i 0 hours, 7 minutes and 44 seconds analysis time.
 66 holograms processed.
 201 in focus objects found.

Classification:
 Ceratium - 12
 Rhizosolenia - 9
 Skeletonema - 12
 Melosira - 7
 Noise - 142

OK

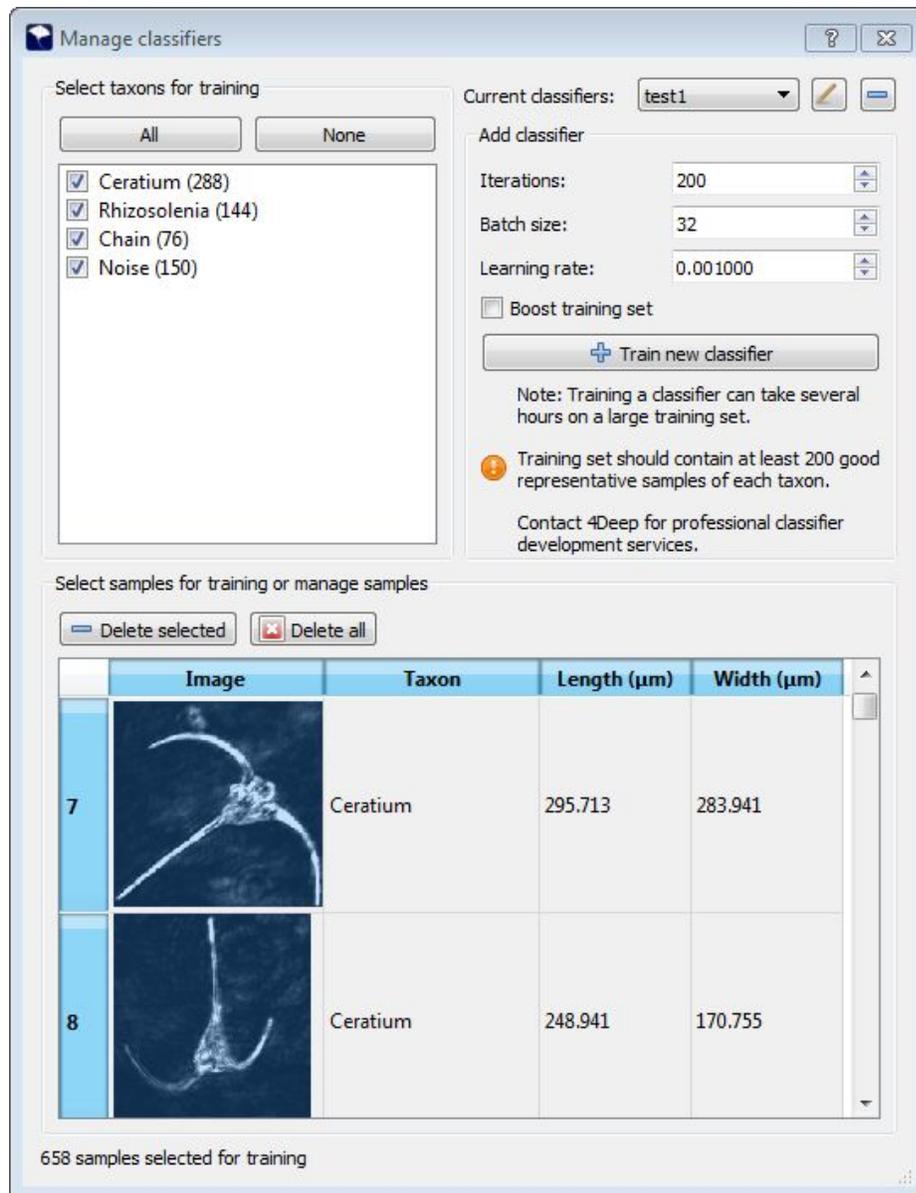
- Ability to cancel deleting particles from database.
- Image segmentation is done on GPU (when available) - increasing detection speed ~2x.
- Copy Hologram/Background name and reconstruction distance to Octopus.



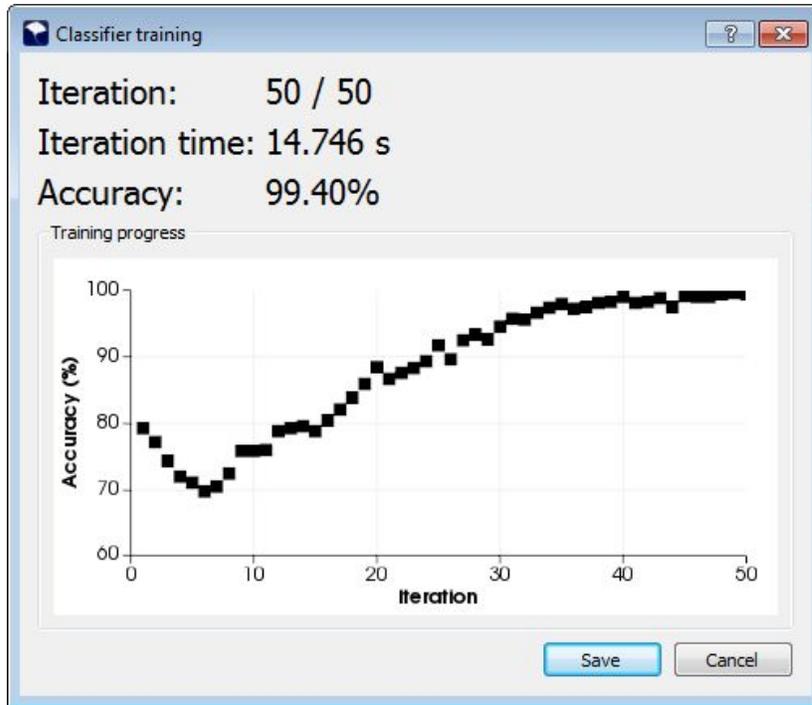
- Export report to comma-separated (CSV) file format.
- Optimizations in hologram reconstruction CUDA code.
- Added support for the latest "Volta" NVIDIA GPUs.
- New remote commands: `EXPORT_REPORT`, `SELECT_CLASSIFIER`
- Bug fixes and stability improvements.
- Updated to the latest libraries - Qt 5.9, OpenCV 3.3, CUDA 9.0.

2.0.0

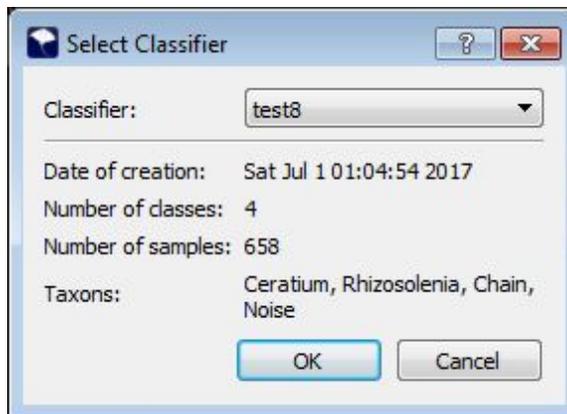
- 64-bit software supports large RAM sizes, improves performance and stability.
- Completely new deep neural network (DNN) image classifier supports fast, GPU-accelerated high accuracy online and offline image classification. DNN classifier is based on the proprietary convolutional neural network and is optimized for classification of plankton images and sediment particles.
- Updated and streamlined Manage Classifiers dialog supports the ability to train new DNN image classifiers and manage samples used for training.



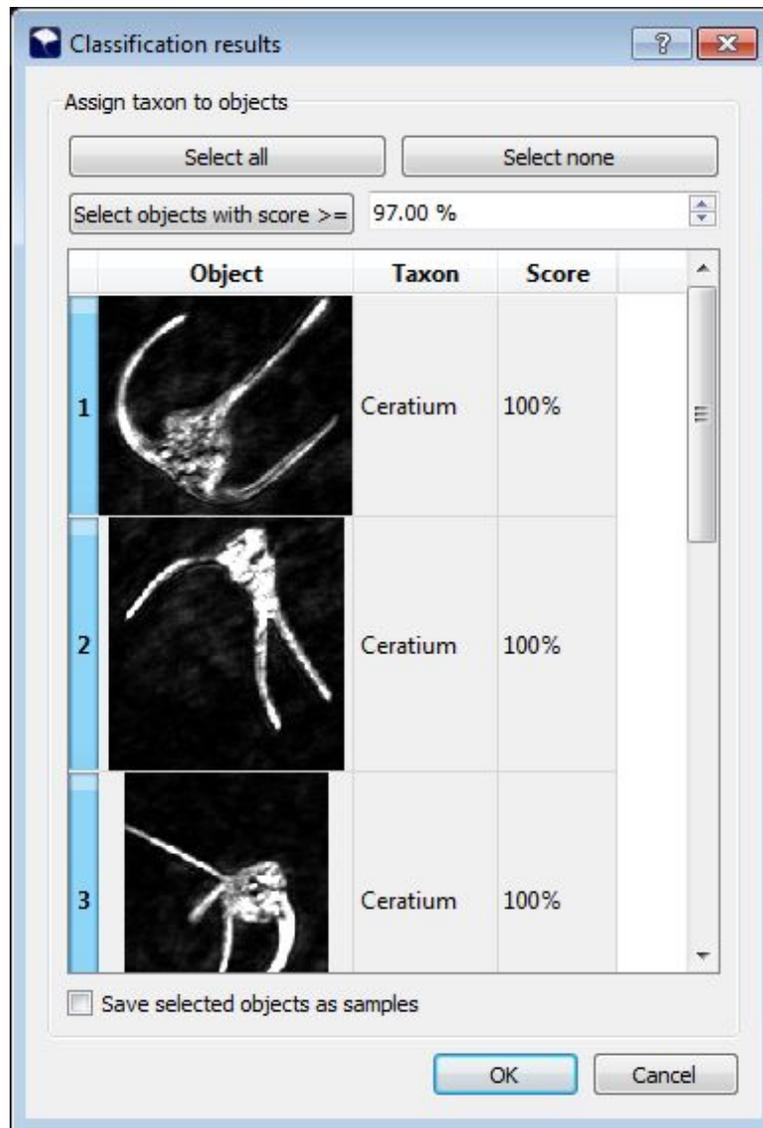
- Classifier training progress screen shows the current accuracy of training, iteration time, and training progress.



- Select Classifiers dialog can be used to select a pre-trained classifier, or skip classification when analyzing holograms.



- Show image classification results with the ability to assign taxons to selected objects.



- Added ability to filter for specific taxons by name in the grid view.
- Added ability to save selected objects to the report file in Excel format.
- Much improved search for in-focus objects within holographic volume.
- Much faster database backend.
- Support for the latest submersible microscope - "S6".
- During recording, metadata containing information about instrument profile and recording parameters is stored directly into hologram image file.
- Reconstruction parameters are set automatically based on the metadata stored

in the hologram image file.

- Detection of the microscope model based on information stored in the microscope EEPROM (on models that support this).
- Floating point support for laser pulse duration - better control of the exposure on microscopes that support it.
- Excel export uses the new "2007" file format, removing limitations on spreadsheet size.
- Faster hologram reconstructions.
- Bug fixes and stability improvements.
- Updated to the latest libraries - Qt 5.7, OpenCV 3.1, VTK 7.1, CUDA 8.0.

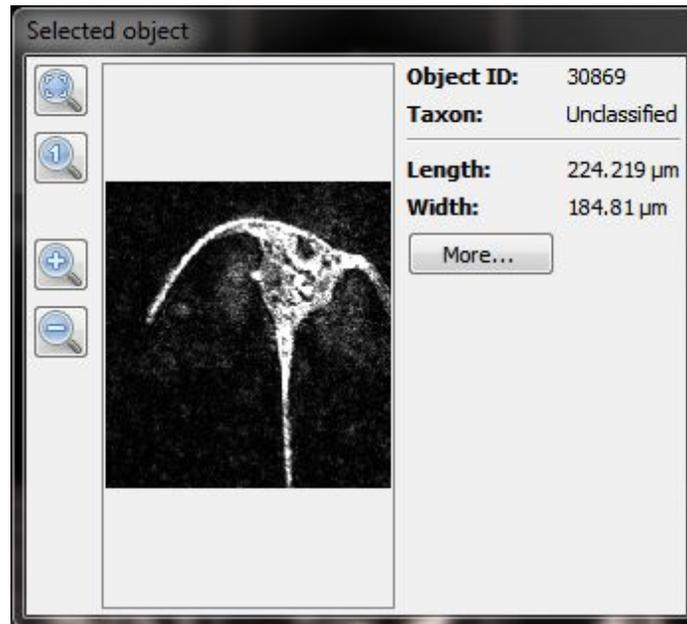
1.4.1

- Bug fixes and user interface improvements.
- Performance improvements in the database access.
- Better sorting of taxons in the image grid.
- New remote commands `EXPORT_IMAGES` and `QUERY_DATABASE`.
- Laser pulse duration is now double, with 100 ns step. Much better control of laser pulse duration on microscopes that support it.
- Pulsed mode is on by default.
- Improved autopulse algorithm.

1.4.0

- Greatly improved particle search and focus measure calculation algorithms.
- Predicts time need for the offline analysis of holograms (after 10 pairs have been analyzed).
- Improved asynchronous access to database.
- Simplified and streamlined user interface.

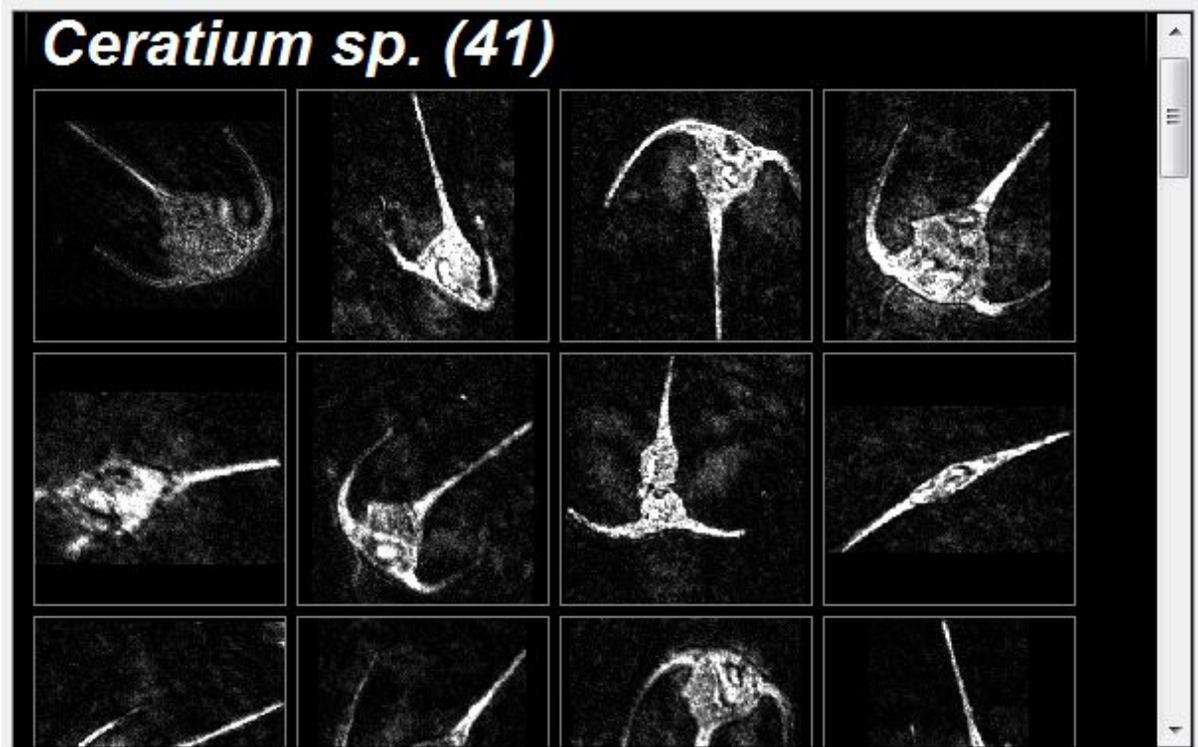
- Much faster sorting of objects in the grid view.
- Dockable object properties dialog.



- Improved demo mode.
- Welcome screen.
- Updated manual.

1.1.0

- Bug fixes. Fixed crashes in the camera control code.
- Pulsed laser support.
- Categorized view in the grid (taxons as separate categories).



- Improvements to the particle search within volume.
- SVM-based image classifier.
- Updated the libraries to the most recent versions.

1.0.0

- Initial release

